

## WHAT IS CLAIMED IS:

1. A connection device associated with an arm of an articulated three-dimensional measuring appliance, the device comprising a moving assembly rigidly secured to a jointed end of the arm and mounted in the tubular body of the arm to turn about the longitudinal axis of said arm, and a fixed assembly mounted at the other end of the arm, together with connection means for providing an electrical link between these two assemblies, wherein the moving assembly comprises first and second adjacent components on a common axis, each presenting a central passage for passing electrical connection wires, the first component being constrained to rotate with the jointed end of the arm and being connected to the second component by a coupling system having successive dogs so that said second component is not entrained in rotation until said first component has been entrained in rotation through significantly more than one complete revolution, and wherein the connection means include facing contact members carried respectively by the fixed assembly and by the second component of the moving assembly, said contact members being arranged to provide a continuous electrical link in normal operation without the second component being entrained in rotation, and an electrical link that is limited to a short angular range of rotation when said second component is entrained in rotation by the first component.
2. A device according to claim 1, wherein the coupling system having successive dogs provided between the two components of the moving assembly is arranged to engage after the first component has turned through about three complete revolutions relative to the second component.
3. A device according to claim 2, further comprising a complementary indexing system arranged between the moving assembly and the tubular body of the arm, said indexing

system being arranged to provide a hard point that is perceptible by the operator of the measuring appliance when the same range of about three revolutions is exceeded.

5

4. A device according to claim 1, wherein the first component of the moving assembly is a hollow shaft acting as a coder shaft for an angle coder arranged in the arm to measure the rotation of the jointed end about the longitudinal axis of said arm.

10

5. A device according to claim 1, wherein the second component of the moving assembly comprises two disks on a common axis interconnected by a hollow shaft, a first one of the disks forming part of the coupling system having successive dogs and a second one of the disks having an inner face carrying contact members which co-operate with the contact members carried by the fixed assembly.

15

6. A device according to claim 5, wherein the contact members carried by the second disk of the second component of the moving assembly comprise coaxial tracks in the form of circular arcs defining the short angular range of rotation, and the contact members carried by the fixed assembly comprise at least one wiper block whose wipers co-operate with respective tracks of the other contact members.

20

25

7. A device according to claim 6, wherein the contact members carried by the fixed assembly comprise two wiper blocks that are circumferentially spaced apart by an angle corresponding substantially to the short angular range of rotation so that the wipers of the two blocks come into contact with the respective tracks only when the second component of the moving assembly is in a central position which corresponds to the normal operation position.

30

35

8. A device according to claim 6, wherein the short angular range of rotation is about  $20^{\circ}$  to  $30^{\circ}$ .
- 5    9. A device according to claim 6, wherein the co-operation between the wipers of the wiper block(s) and the coaxial tracks is obtained solely in relative rotation.        \*
- 10    10. A device according to claim 6, wherein the co-operation between the wipers of the wiper block(s) and the coaxial tracks is obtained by relative axial translation and relative rotation.
- 15    11. A device according to claim 6, wherein the electrical connection wires passing inside the two components of the moving assembly are connected to the coaxial tracks carried by the second disk of the second component of the moving assembly, the wiper block(s) carried by the fixed  
20    assembly serving to provide a link with electrical connection wires associated with a coder card assembly secured to the fixed assembly.